254* A retrospective analysis of physiotherapy input during a standard admission compared to a terminal admission in adults with CF

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Few studies examine end of life care in CF, despite it being an important component of holistic care. Admissions for individuals with CF are often unpredictable, and it is difficult to predict when an admission might be the final one. With the progression of end-stage disease physiotherapy may need to be adapted, and it is important to appreciate the benefit it may give as well as the burden it imposes.

Aim: A retrospective analysis of adult deaths at our centre to investigate if physiotherapy input is adapted during the terminal admission compared to an admission during the previous year (this is a follow-up study to comparing home treatment with terminal care).

Method: The physiotherapy records of 42 adults (who have died at our centre in the last 2 years) were analysed to assess scope and length of physiotherapy input during a non-terminal (in the last year) and terminal admission.

Results: Mean length of stay for the final admission was 24 days (mean number of 35 treatments), compared to 17 days (mean of 53 treatments) for the terminal admission. NIV was used by 24% of individuals on a previous admission rising to 86% on the final admission. Differences in physiotherapy techniques during a non-terminal admission show more adjuncts such as PEP, Flutter and Cornet are used than in the terminal phase, while in a terminal admission more IPPB, relaxation and anxiety management is included.

Conclusion: This study shows that physiotherapy input does differ for routine and terminal admsissions. It highlights the need for earlier assessment and intervention with NIV, and it is important to recognise an individual's changing needs. Physiotherapy has a large and diverse role in end-stage disease and end of life care and needs to provide an adaptable approach.

255* Pulmonary rehabilitation following lung transplantation

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The optimal duration and structure of pulmonary rehabilitation (PR) for lung transplant (LT) recipients is not known. This study aimed to describe changes in functional outcomes in LT recipients who participated in a post LT PR program at The Alfred, Melbourne.

Methods Prospective, repeated measures design. Functional exercise capacity (six minute walk test-6MWT), lung function (FEV_1, FVC) and quality of life (SF 36) were assessed at 1, 2 and 3 months following LT. Following discharge, all subjects attended a 1 hour supervised outpatient exercise training class 3 days per week until 12 weeks post LT and 6 education sessions. Patients with post-operative complications were excluded. Data were analysed using descriptive statistics and ANOVA with repeated measures.

Results 60 consecutive LT recipients from Sept 2003 to Mar 2005 were assessed for inclusion. 36 (50% male) subjects, mean age 46±14 yrs were recruited and completed the study. 81% had undergone bilateral LT. 33% had cystic fibrosis, 31% chronic obstructive pulmonary disease. Significant improvements were demonstrated in 6MWT (451±16 m to 545±16 m, $p < 0.001$), FEV_1 (72±4% to 81±4%, $p < 0.0001$), FVC (74±4% to 78±4%, $p < 0.0001$) and all SF36 domains, $p < 0.05$. The greatest changes in 6MWT and lung function were seen between 1 and 2 months. Statistically significant improvements in 4 SF36 domains (physical functioning, role functioning physical, role functioning emotional and social functioning) were seen between month 2 and 3, $p < 0.01$.

Conclusion Functional exercise capacity, lung function and quality of life improved significantly over the first 3 months in LT recipients who participated in PR at our institution. This data will allow benchmarking with other centres and program structures.

Supported by: Alfred Trusts Grant.

256* Exercise capacity, muscle strength and quality of life in adult CF patients

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Exercise capacity and peripheral muscle strength are important variables towards survival and functionality in Cystic Fibrosis (CF) patients. Improving quality of life (QoL) is a major goal, but data concerning the relationship between QoL and physical measurements in CF patients are poor.

Thirty-two adult patients (14 women), 25±7 years, FEV_1 72±17%pred. participated. Patients performed an incremental exercise test on a cycle ergometer, spirometry, maximal respiratory strength, hand grip force, isometric quadriceps force (QF) and a 6 minute walking test. Patients also completed the Cystic Fibrosis Questionnaire (CFQ-R).

Eight of 12 CFQ-R domains were related with physiological measurements of muscle strength and exercise performance. Multiple regression analysis shows that in 3 of these domains (physical functioning, body image and vitality) much of the variance is explained by physiological contributors (see table).

We can conclude that there is a significant relationship between measurements of muscle strength and exercise performance and the QoL in CF patients. FEV_1 did not feature as an important contributor to QoL. Patients with better physical capacity and better muscle strength, report a higher physical QoL, a more positive body image and increased vitality. Improving exercise capacity and peripheral muscle strength may result in an improved perception of quality of life.

	Physical functioning		Body image		Vitality	
	Beta	R^2=60.0%	Beta	R^2=23.4%	Beta	R^2=16.4%
HRmax%pred	0.56					
QF%pred	0.44				0.41	
Watt%pred			0.48			

HRmax: maximal heart rate; QF: quadriceps force; Watt: maximal watt.

257 Relationship between upper limb muscle strength and functional capacity in patients with cystic fibrosis (CF)

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Aims: The aim of this study was to investigate the relationship between upper limb muscle strength and functional capacity in patients with cystic fibrosis (CF).

Methods: Twenty two patients with CF (mean age 14.77±4.51 years, % 50 females) were participated in this study. Pulmonary function test and six minute walk test (6MWT) were performed. Heart rate, fatigue and dyspnea perception using modified Borg scale were measured before and after 6MWT. Respiratory muscle strength (P_{Imax} and P_{Emax}) were measured using a mouth pressure device. Biceps brachii, shoulder flexor, and hand grip muscles strength were evaluated with a hand held dynamometer.

Results: 6MWT distance was significantly correlated with biceps muscle strength ($r = 0.620$, $p < 0.05$), shoulder flexor muscle strength ($r = 0.514$, $p < 0.05$), P_{Imax} ($r = 0.512$, $p < 0.05$), P_{Emax} ($r = 0.476$, $p < 0.05$), and dyspnea perception ($r = 0.534$, $p < 0.05$). There was no relationship between hand grip muscle strength and 6MWT distance.

Conclusions: Submaximal exercise tolerance is related with upper extremity muscle strength. Upper limb strengthening exercises can improve functional capacity in CF patients.